

**IDENTIFYING THE FEASIBILITY OF PRE-EMPLOYMENT PSYCHOLOGICAL
SCREENING IN THE MONTGOMERY COUNTY, MARYLAND, DEPARTMENT
OF FIRE AND RESCUE SERVICES**

STRATEGIC MANAGEMENT OF CHANGE

by

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ABSTRACT

Stress has been and continues to be a concern to and a debilitator of fire fighters across the nation. Posttraumatic Stress Disorder (PTSD), an anxiety disorder, is but one of the results of cumulative and/or traumatic stress. A recent court ruling impacting workers' compensation for PTSD and 3 retirements in 9 years from PTSD, resulted in this project. The purpose of this Applied Research Project was to identify the feasibility of pre-employment psychological testing in the Montgomery County, Maryland, Department of Fire and Rescue Services (DFRS).

Historical and evaluative research methods were utilized to answer the following questions: 1. What has been the history of PTSD-related disabilities in the DFRS? 2. Can psychological testing be used to determine a predisposition of developing PTSD? 3. Should psychological testing be included in the pre-employment testing process in DFRS? A literature review was conducted at the National Fire Academy's Learning Resource Center. County and DFRS policies, reports and documents were also reviewed. A thorough hand search of over 200 files of retired and separated fire fighters was conducted to identify any who retired as a result of PTSD. Interviews were conducted with Montgomery County Police Department (MCPD) officials to obtain information about MCPD's psychological testing. Results revealed that out of 89 fire fighters who retired on service-connected disability, only 3, or 3.4%, retired as a result of PTSD. The results also indicated that psychological testing can identify a predisposition for developing PTSD. In addition, it was highly recommended that psychological testing be included in the DFRS hiring process. Recommendations that were offered included: Commissioning a work group to develop

and coordinate a psychological testing process that begins with administering a personality-traits profile test; conducting an analysis of desired traits that are conducive to fire and rescue work; determining costs and budget accordingly; evaluating the personality-traits profile testing after implementation; and commencing development of psychological testing.

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INTRODUCTION

Stress, for most fire fighters, rescuers and paramedics, is an unwelcome and uncontrollable component of the delivery of emergency services. It is not a fact, however, of which the fire service has been ignorant. Hildebrand (1984, June, p. 55) states, "Stress has been found to cause nearly one half of all fire fighter deaths in the line of duty". In 1991, Fishkin reported that stress-related disability claims from fire and police personnel were five times greater than claims within the private sector (p. 16).

The stressful nature of the firefighting profession continues to be validated. The Washington Post, in an article that appeared in the November 9, 1997, edition, reported on the 25 most stressful occupations as listed in Jobs Rated Almanac, a publication of National Business Employment Weekly. Fire fighter was listed as the second most stressful occupation, with the U.S. President being first. According to the article, the job of fire fighter is more stressful than other occupations, such as surgeon (ranked sixth), police officer (ranked eighth), air traffic controller (ranked tenth) and stockbroker (ranked twentieth). Emergency medical technician was ranked twenty-fourth (p. H5). In an October 1994 article in Firehouse Magazine, Lewis reports that, at that time, Jobs Rated Almanac ranked fire fighting as the most stressful job in the United States (p. 58).

With the number of calls for assistance increasing each year, and the upswing in the number of violent and traumatic incidents that occur in a predominantly urban and suburban jurisdiction, the stress imposed on all individuals in the fire and rescue service is tremendous. In

the United States Fire Administration's Stress Management: Model Program for Maintaining Firefighter Well-Being it cites "Stress is recognized as one of the most serious occupational hazards affecting a firefighter's health, well-being and career. On the other hand, we know that stress is not something to be avoided absolutely, as it is essential for vitality and optimal functioning" (p. 1). Stress, however, can be overwhelming for some people. For a few, unfortunately, it becomes so severe that an anxiety disorder, Posttraumatic Stress Disorder (PTSD) develops, resulting in both psychological and/or physical symptoms.

Extreme cases of PTSD lead to months of psychological treatment, temporary change of assignment and, eventually, retirement on disability. The strain on the individual and his/her family is unimaginable. The fire department faces hardships as well. Not only does the fire department lose the services of the fire fighter, both during the period of disability and upon retirement, but, in addition, overtime salaries are expended to replace that fire fighter during the period of disability. In a 1994 report by the Montgomery County Public Safety Cluster Team Subcommittee on Disability, it was estimated that it costs the Montgomery County Department of Fire and Rescue Services approximately \$40,000 a year to replace a fire fighter while on disability leave (p. 5). Obviously, four years later, that cost has increased. Also to be considered are the costs associated with the recruitment and hiring process, training and administrative costs, and salaries necessary to replace that individual if he/she retires as a result of PTSD.

The purpose of this research project is to identify the feasibility of pre-employment psychological testing in the Montgomery County Department of Fire and Rescue Services.

Historical and evaluative research methods were utilized to answer the following questions:

What has been the history of PTSD-related disabilities in the Montgomery County Department of Fire and Rescue Services?

Can psychological testing be used to determine a predisposition for PTSD?

Should psychological tests be included in the employment testing process in the Montgomery County Department of Fire and Rescue Services?

BACKGROUND AND SIGNIFICANCE

Montgomery County is one of two Maryland jurisdictions in the Washington, D.C. Metropolitan Area, serving a population of over 800,000 in a county that is comprised of urban, suburban and rural areas. The county's Department of Fire and Rescue Services (DFRS) is one of the three components (excluding police agencies) in the delivery of emergency services in Montgomery County. The DFRS FY98 complement of career fire fighter/rescuers is 847, with the majority of those fire fighters assigned to the individual fire/rescue corporations to staff apparatus. Also under the direction of DFRS are Code Enforcement, Emergency Management, Bomb Squad, Fire and Explosive Investigations, Emergency Management, Training, Specialty Teams and Emergency Communications.

In the years before January 1988, career fire fighters were employed by the individual fire/rescue corporations. A Fair Labor Standards Act (FLSA) lawsuit about overtime resulted in

the County enacting emergency legislation that transferred all career fire fighter/rescuers to the control and employ of DFRS. This became effective on January 16, 1988, and is commonly referred to as "transition".

Since transition, the career fire service in Montgomery County has become more diverse. Approximately 10.4 % of the career fire fighter/rescuers are female. Overall, minorities (including females) comprise approximately 31.3 % of the uniformed workforce. Out of the current workforce of fire fighter/rescuers, 362 or 42.7% were hired after transition.

During the period from January 1988 through December 1997, there were only three cases of disability retirement associated with PTSD. As this was only 3.5% of the total of 89 service-connected disability retirements during the same period, there appeared to be no reason for concern. As this report is being written, another case of possible PTSD has surfaced.

In May 1997, representatives from various county agencies, including DFRS, met to discuss the implications of a then-recent County Circuit Court ruling that granted Workers' Compensation benefits to a county bus driver who suffered from PTSD. The cause of the PTSD, which the County did not dispute, was the result of the bus operator striking a pedestrian who subsequently died. While it did not appear that this case had an impact on DFRS, another case, Means v. Baltimore County (1997), was discussed and it was believed that this case could have a tremendous impact on DFRS and the County. This case dealt with a Baltimore County paramedic, Means, who claimed delayed onset of PTSD as a result of continued exposure to traumatic and disturbing fire/rescue incidents.

In the Means case, the Workers' Compensation Commission again denied the claim resulting from PTSD, citing that PTSD was not a compensable occupational disease/illness. On appeal, the Circuit Court of Baltimore County, Maryland, affirmed the Commission's decision. That decision was appealed and the Maryland Court of Appeals reversed the Circuit Court's decision, ruling that this type of disorder could be compensable as an occupational disease/illness. The case was remanded to be heard on its merits.

The discussion of this case raised the question as to whether psychological tests were available that could predict a predisposition for developing PTSD in fire fighter/rescuers. Further discussion led to questions as to whether Montgomery County could include psychological testing in its pre-employment battery of tests and screening for fire fighter/rescuers.

Specifics regarding the history or trends of PTSD had never been addressed within the DFRS. Since the current applicant eligibility list has been extended to the end of 1998, a study was undertaken to look into this issue for possible incorporation of psychological testing in the next recruitment process, which is scheduled tentatively for Spring 1999.

This applied research project will utilize some of the concepts found in the Introduction to Change Management module and a few aspects of the Change Management Model module, specifically Phase I, Analysis, and Phase IV, Evaluation/Institutionalism, of Strategic Management of Change.

LITERATURE REVIEW

The National Fire Academy's Learning Resource Center (LRC), as well as County laws, reports and sources, court cases, and DFRS policies and documents were used as the literature research for this project. While there was a plethora of information on stress in the fire service and stress management programs, very little information specifically addressed the subject of PTSD.

Stress

Fishkin (1991, p. 17) reported "...stress is neither 'good' nor 'bad,' however the effects of stress are cumulative, ultimately resulting in an attack upon the weakest or most vulnerable part of our body". He further stated, "It should be apparent that for firefighter personnel in general, *the most important stresses are psychologically based and emotionally related* - especially those causing severe distress" (p. 21).

In the Introduction to the United States Fire Administration's Stress Management: Model Program for Maintaining Firefighter Well-Being, it stated:

"America's firefighters are not excluded from the wear and tear of living in present-day society. In addition to shouldering the effects of daily stress, firefighters are subjected to a great number of unusually powerful and potentially destructive stressors unique to their work. These stressors include...psychological stressors, such as death, trauma, and mass casualties, to name a few". (p.15)

"At the most basic level, stress is psychological and is the direct result of the ways in

which we have learned to cope" (Fishkin, 1991, p. 18). For fire fighters, Hildebrand wrote (1984, May, p. 25), "the occupational experience of emergency response is personal, profound and powerful. Its psychological impact and the impression that remains are determined, in part, by the fire fighter's emotional, physical and environmental preparedness". Hildebrand (1984, August, p. 37) also noted, when reporting the results of a survey on stress, that "More than 70 percent of the respondents noted that the fire service had not prepared them at all for the stress of the job, or had prepared them to a small extent...".

Sources of stress, as presented by Hildebrand (1984, May, p. 21) included levels of uncertainty, physical response to the alarm, interpersonal tension, exposure to human tragedy and fear. Interestingly, surveys conducted for two separate Applied Research Projects, both on stress management, resulted in different factors as the leading causes of stress.

Green (1996, p. 23) surveyed approximately half of his department's cardiac technicians (thirty surveys were sent out and twenty-six were returned). The three leading causes of stress reported were:

1. Being affected by calls involving children (27%);
2. Little input or control over the job (15%); and
3. The response load being too great during a shift (15%).

Partin (1994, pp. 11-12) surveyed his entire department and asked the personnel to determine what events created stress. The top three were:

1. Lack of confidence in department leadership was the primary stressor listed. 88%

listed this as a major issue.

2. The second leading cause was fear. (32%) Fear was broken down into two categories:

a. Fear of death and injury

i. possibility of personal injury and/or death

ii. traumatic exposure to the death and injuries of others, particularly children.

b. General sense of helplessness

3. Social issues, including racism, sexism, condescension, lack of respect, honesty and caring atmosphere, etc (23%).

Hildebrand (1984, June) reports that "Encountering death on the job is considered one of the most impactful stressors in the fire service". Death of and trauma to infants and young children were also high on the list of stressors. Other predominant stressors included mass casualty incidents, incidents where a large risk of life loss is present, as in high-rise fires, family anxiety as a result of the dangers of the job, survivor and relative interaction and the interaction with peers and supervisors in a number of different settings (pp. 56-57).

Posttraumatic Stress Disorder

PTSD is categorized as an anxiety disorder (p. 424) according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). The DSM-IV articulates the diagnostic features of PTSD as:

The essential feature of Posttraumatic Stress Disorder is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate. (p. 424)

DSM-IV continued by describing the "characteristic symptoms resulting from the exposure to the extreme trauma" (p. 424). Those characteristics included "persistent reexperiencing of the traumatic event...persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness...and persistent symptoms of increased arousal" (p. 424). It is not enough that these symptoms are present. They must persist for more than a month and "cause clinically significant distress or impairment in social, occupation, or other important areas of functioning" (p. 424).

In a November 1985 article in Fire Engineering, Holt suggested that, regardless of experience and training, a fire fighter may come upon an incident for which he is not psychologically prepared (p.24). DSM-IV, discussing the possible influences of preexisting conditions or disorders that could lead to PTSD, suggested that PTSD "can develop in individuals without any predisposing conditions, particularly if the stressor is especially extreme" (p. 427). The symptoms of PTSD will normally begin during the three months following the exposure but

could be delayed for months or years (p. 426).

Based on studies, a "lifetime prevalence" for developing PTSD can range from 1% to 14%. Also affecting the possibility of developing PTSD is the "severity, duration, and proximity of an individual's exposure to the traumatic incident" (DSM-IV, p.426). Hildebrand, in the June 1984 Fire Command, wrote "Stress always has an effect. This effect may be observable immediately following the stressor, or later. The effects of stress also are cumulative and have long-term ramifications" (p. 58).

Psychological Testing

The concept and practice of psychological testing in the public-safety sector is not new. Canavan (1981, May, p. 128) reported that, in 1938, the Toledo, Ohio and Wilmington, Delaware Police Departments administered psychiatric screenings in an effort to assess an applicant's psychological make-up. In 1959, Portland, Oregon joined the ranks in testing its police and fire personnel. The Boston Fire Department, in 1978, made the decision to begin utilizing psychological testing in its hiring process.

Canavan, while not believing that the "personal lives, conduct, or habits of employees" can be predicted, stated that the current trend (in 1981) in psychological testing makes it "more economically feasible to eliminate potential problem cases before they are hired" (p. 128).

Smelson (1979, April, p. 23) added "The psychiatric screening process still falls short of its goal, which is to determine accurately whether a candidate will be able to perform the duties of a fire fighter." He suggested enhancing the process with additional interviews of family and neighbors,

additional psychological testing and group interviews (p. 23). Podell (1988, October, p. 68) countered that psychological screenings can give advance warnings of tendencies toward a number of unacceptable behaviors. By doing so, psychological screening serves as a measure of protection for the community and the department.

Bownas (1981, January, p. 18), reported that the St. Paul Department of Fire and Safety Services, when developing a psychological-screening process, "was looking for ways to evaluate the candidates' interpersonal skills, motivation and potential contribution to the paramedic service". Podell stated "Just like a physical examination, a psychological screening can assist you in evaluating potential new staff" (p. 68). He continued "The environmental conditions necessary to public-safety employment, such as rotating and long shifts, mandatory overtime, and dealing with death and traumatic crisis, all contribute to the need for personal integrity and stability" (p. 68).

There are a number of scales or tests to measure PTSD. Miller (1993, pp 167-169) listed the following:

1. Structured Clinical Interview for DSM-III-R
2. Vietnam Experiences Questionnaire
3. The Boston Clinical Interview for Post-traumatic Stress Disorder
4. Clinician-Administered Post-traumatic Stress Disorder Scale
5. Mississippi Scale for Combat-Related Post-traumatic Stress Disorder
6. The Civilian Mississippi Scale

7. The Mississippi Scale-Hostage Version
8. The Mississippi Scale for Persian Gulf War Zone Personnel
9. Vietnam Era Stress Inventory
10. PTSD Subscales of the Minnesota Multiphasic Personality Inventory (MMPI) and MMPI-2.

Murray (1995) conducted an extensive survey of fire departments to determine to what extent psychological testing is used in pre-employment processes. Questionnaires were sent to one hundred twenty-five (125) departments of the Metro Section (Metro) of the International Association of Fire Chiefs. Additionally, another two hundred fifty (250) departments (Random) were selected at random and were sent surveys. Ninety-one (72.8%) of the Metro departments responded to the survey, while one hundred thirty-six (54.4%) of the Random departments responded (p. 34).

Of the Metro departments, 62.6% responded that they did not conduct psychological screenings, and 56.6% of the Random departments responded the same. Conversely, 80% of the Metro departments and 85% of the Random departments reported that there was a value in psychological screening of job applicants (p. 36).

Murray's survey found that the test used most widely was the Minnesota Multiphasic Personality Inventory (MMPI). A total of fifty-three (53) or 23.3% of the responding departments utilized this testing procedure. The next most widely-used test was the California Psychological Inventory, with 16 departments using it (p. 37). The respondents to Murray's survey also were asked to select what they thought were the most important traits that fire fighters

or paramedics should possess. Team oriented, ethical, emotionally stable, able to control stress and able to use common sense were the top five responses, but not in the same order, from both groups (pp. 38-40).

In his discussion of his research, Murray related "Firefighters must be able to withstand extraordinary demands placed on them physically and emotionally. Employment in this field is not for everyone" (p. 41). Canavan echoed this by stating:

Fire fighting is a job that makes physical, mental, and spiritual demands of those who choose to enter the field. It's a comforting thought for a fire fighter to know that when he's in a tight spot, his partner will measure up. Psychological testing may help provide that reassurance. (p. 136)

Legal Rulings

A very early test of the legality of conducting psychological testing in pre-employment was a case involving Jersey City, New Jersey Fire Department, McKenna v. Fargo (1978/1979).

The city tested both police and fire department applicants, but the ACLU, who brought the lawsuit, chose to sue only the fire department.

In 1978, a year after the month-long trial, a federal district court judge ruled in favor of the city, citing that:

(1) the testing did not infringe any First and Fourteenth Amendment rights...(2) the applicant's right to privacy was burdened by the requirement, but (3) the interest of the City in screening out applicants who would not be able to handle the psychological

pressures of the job was sufficient to justify the intrusion into the privacy of the applicant, and (4) City would be required to adopt regulations governing access to the test data...limit the length of time for which the test data was retained.

The judge, U. S. District Judge James A. Coolahan, stated at one point in his opinion:

The Court, however, believes the evidence establishes the following conclusions: because of the unique psychological factors which are crucial to the life-endangering occupation of fire fighting, a psychological and emotional assessment of applicants has an importance that would be found in very few occupations; that the psychological assessment procedure used by the defendants is likely to reduce substantially the risk of hiring firemen who are emotionally unfit for the job.

It should be noted that this ruling was appealed to the United States Court of Appeals for the Third Circuit. That Court affirmed the District Court's ruling in June of 1979.

A case of considerable interest in Maryland is one that arose out of a workers' compensation claim for PTSD that was denied. In Means v. Baltimore County (1997), Means, a Baltimore County, Maryland, paramedic claimed a delayed onset of PTSD as a result of an incident that caused her to "wake-up" and remember a series of very traumatic incidents a few years earlier. The Workers' Compensation Commission denied her claim of reimbursement for 110 hours of missed work, after a hearing in which the Commission concluded that "she had not suffered an occupational disease resulting out of and in the course of her employment". Means appealed to Maryland Circuit Court for Baltimore County and the Court granted the County's

request for summary judgment explaining "that as a matter of law, PTSD may not form the basis of an occupational disease claim".

Means filed an appeal to the Maryland Court of Special Appeals and the Maryland Court of Appeals granted certiorari and, ultimately, reversed the Circuit Court's judgment and remanded the case to be heard on its merits. The Court of Appeals was careful not to rule that Means suffered from PTSD or that her case was compensable. The Court ruled only that PTSD could be compensable as an occupational disease and left it up to Means to prove that she in fact suffered from PTSD and that it was a result of her employment.

In a very recent decision, January 1988, the U. S. Court of Appeals, Third Circuit ruled in an Americans with Disabilities Act case, Gaul v. Lucent Technologies Inc., that a stress-free workplace request was unreasonable. In this case, a clinically-depressed employee requested a transfer to a job where he would not be subjected to stress by co-workers. The Court stated that this would impose a "wholly impractical obligation" on "any employer".

PROCEDURES

As there continues to be no computerized database of Departmental files in DFRS, a thorough hand search was conducted of over two hundred (200) personnel files of fire fighter/rescuers who retired or otherwise separated from DFRS between January 1988 and December 1997. The purpose of this search was to identify those individuals who retired as a result of PTSD and to obtain information surrounding their specific circumstances.

A review of past and current payroll and budget reports was conducted to calculate the cost of each aspect of the hiring and recruit training process. This information is crucial to the comparison of the costs related to replacing an individual who retires as a result of PTSD with the cost of psychological testing.

A personal survey was conducted in major jurisdictions in Maryland's Washington-Baltimore Metropolitan areas to ascertain if psychological screening was used in pre-employment processes for the fire departments. Personal interviews also were conducted with Captain Donald Mates, Director of Management and Budget of the Montgomery County Police, and Ms. Marie LaRocca, Director of the Personnel Unit of the Montgomery County Police. A personal communication from David E. Stevenson, Associate County Attorney for Montgomery County to certain department heads reporting on psychological testing in DFRS was used to report on an interview with Gary Kay, Ph. D, a clinical psychologist. Dr. Kay is on contract with the Montgomery County Police to conduct pre-employment evaluations of prospective County police officers.

Assumptions and Limitations

Because the survey Murray conducted in conjunction with his Applied Research Project was so extensive, particularly as far as the number of departments surveyed, and because it was conducted only three years ago, it did not appear worthwhile to duplicate those efforts. For the purposes of this report it will be assumed that Murray's data remains current and valid.

In reviewing the case histories of the three individuals who retired as a result of PTSD much of the medical information was evident. Due to the confidential nature of medical records, however, not only will specific medical information, diagnosis or treatment not be revealed but the name, age, sex, and other personal information of the individuals will not be provided.

RESULTS

In order to determine the history of PTSD-related disability retirements in DFRS an extensive hand search of files of retired and separated employees was performed. The search revealed that three fire fighter/rescuers had been awarded service-connected disability retirement as a result of PTSD during the time period of January 1988 through December 1997. Eighty-nine fire fighter/rescuers have retired on service-connected disability during that same period. This showed that only 3.4% of those who retired on disability were as a result of PTSD.

In one of the cases, a fire fighter, who worked in DFRS for 5 ½ years, claimed and was diagnosed with PTSD as a result of a working-fire incident in a high-rise building. Early into this

incident, a member of the fire fighter's crew was thought to be missing. Part of the fire fighter's direction was to look for the missing fire fighter. A short time later, the "missing" fire fighter was determined to be outside at one of the units. Immediately following the incident the fire fighter and the "missing" fire fighter's performance at the high-rise fire was called into question and an investigation ensued.

During the course of the investigation, but not initially, the fire fighter proffered what it felt like to think that another fire fighter was missing and possibly "down". While there was no mention in the files as to the outcome of the investigation, the fire fighter, nine months after the incident, filed an injury report that led to a determination and diagnosis of PTSD. After an extended period of light duty assignments and continued therapy, the fire fighter was determined not fit for duty and retired, two years and five months after the high-rise incident.

Another case involved a fire fighter/paramedic with over twenty years of service. This paramedic responded to an incident where a 10-month-old infant drowned in a bathtub. The paramedic was able to perform satisfactorily on the call, but began to have problems at the hospital. The paramedic subsequently was diagnosed with PTSD and, after therapy, returned to work in approximately 2 months.

Six months later, this same paramedic responded to an incident where an 11-month-old infant drowned in a river. Once again, the paramedic performed well, but had problems dealing with emotions following the call. The paramedic, again, was diagnosed as suffering from PTSD. After re-assignment, an extended period of light duty and continued therapy, the paramedic was

retired on disability.

The third case involves a fire fighter with less than five years of service. After the fire fighter's performance at a house fire was called into question, the fire fighter admitted suffering a panic and anxiety attack while conducting search and rescue operations. This fire fighter was referred to the Employee's Assistance Program. Further assistance was sought and the fire fighter was diagnosed with PTSD. Within fifteen months of the house fire, the fire fighter was retired on disability.

The review of the available files did not provide much medical information. It would have to be assumed that the medical information provided by the employees' physicians and any independent medical examiners was sufficient to convince the County Medical Examiner to determine that all three were not fit for duty as a fire fighter.

The information in the files suggested, in two of the cases, that the "onset" of problems occurred only after the fire fighters' performance was questioned. It would have been impossible to prove that the PTSD was a defense against possible ramifications due to poor performance without the fire fighters admitting to such. That was highly unlikely to occur.

It was also interesting to note that, of the three cases presented, two of the fire fighters had less than 5 ½ years on the job. It is unclear if this statistic was significant, but it should warrant further consideration. As was stated in the Introduction, there is one additional case that has been identified, just recently, that may lead to a determination of PTSD.

Through an interview with Dr. Gary Kay, a clinical psychologist who specializes in

psychological evaluations for fire fighters and law enforcement officers (D. E. Stevenson, personal communication, June, 1997) the answer to whether psychological testing can be used to determine a predisposition for PTSD appears to be yes. Dr. Kay is the contract psychologist who has conducted pre-employment evaluations for the Montgomery County Police Department. He also developed the personality traits profile test that is currently used by the County Police.

Stevenson reported that Dr. Kay stated that susceptibility to PTSD has been one of the traits evaluated by the battery of psychological tests that have been administered to the County police officer candidates over the past twelve years. Several of the common psychological tests used have PTSD prediction scales built into them. Dr. Kay believed that the low incidence of PTSD among County police officers during the last ten years was traceable to the results of the psychological tests.

Stevenson continued that Dr. Kay further explained that while anyone, even those not prone to stress disorders, can develop PTSD if they experience an extreme traumatic incident, there is a group of people who are more susceptible to stress disorders than others. Testing can assist in identifying individuals who are vulnerable to the future development of PTSD. Dr. Kay, in speaking particularly about fire fighter/rescuers, believed that they were at particular risk of developing PTSD because of the nature of their work.

The interview with Dr. Kay revealed that common psychological tests used in pre-employment evaluations included questions about the applicants' family history, existing social support network, previous mental problems, childhood experiences and personality

characteristics. Signs that identify persons who are at risk of developing PTSD are provided to psychologists through clinical evaluations of the answers to the types of questions listed above. Some of these tests probe for information about occurrences of childhood traumas. These can be "red flags" of susceptibility to PTSD.

Inquiries about an applicant's current problems with stress and how applicants have dealt with stressful situations in the past are also an aspect of standardized tests. Since PTSD symptoms can recur, even after the issues have been resolved, and since current, ongoing problems with stress can indicate a higher likelihood of future PTSD susceptibility, these stress-related questions help psychologists predict which applicants are particularly prone to PTSD.

Not only has Dr. Kay recommended pre-employment psychological testing for applicant fire fighters and paramedics, as Stevenson cited, he also believed it should be included in the employment testing process in DFRS. Dr. Kay believed that, while testing is valuable in identifying those prone to PTSD, there are other values to doing it. Identifying persons who are not particularly tolerant in social interactions is a primary value in psychological testing. With the unusual 24-hour shift and communal living arrangements, two of the most desirable traits for fire fighters are tolerance and agreeability under these conditions.

Dr. Kay recommended that DFRS consider engaging in a psychological task analysis of fire fighting and rescue work in the County. This would be used in developing a personality-traits profile as an initial, pre-offer screening device. The interviews would identify a profile of appropriate personality traits, such as resilience, orderliness, sense of duty and conscientiousness.

Dr. Kay believed that a pre-offer testing would be a good beginning point for DFRS. He estimated that the tests could be administered for \$18-\$20 per applicant.

As far as Dr. Kay is concerned, Stevenson reported, the answer again is a qualified yes as to whether DFRS should include psychological testing in the pre-employment process in DFRS. Testing could be developed specifically for the DFRS, and that testing, Dr. Kay believed, would be a significant tool in "weeding out" those applicants that have personality traits that would not be conducive to being a fire fighter/rescuer. The qualifier is whether the Department and the County would embrace this idea and proceed with its development and implementation.

In as much as the police already have conducted psychological screening, it would seem obvious that DFRS could also. Issues precluding implementation are determining the overall costs, including this testing in the minimum qualifications for the positions and developing the personality traits that are desired by DFRS.

The Montgomery County Police Department has been conducting two levels of pre-employment psychological testing for applicants for over twelve (12) years according to Ms. LaRocca (personal communication, March 12, 1998). A personality-traits test is administered pre-offer and a psychological screening is administered post-offer. The personality-traits test is another in a series of eliminators in the entire hiring process and is given after a candidate has successfully passed a structured interview and before a background check is completed.

The second level of psychological testing occurs after the candidate has been tentatively offered a position. As part of the post-offer medical examination, all candidates are required to

interview with a contract psychologist after completing a battery of clinical psychological tests administered in the psychologist's office. The Police Department Personnel office is then provided with a multi-page confidential analysis of the candidate's psychological fitness for police work. The report rates the candidates in one of four categories: highly recommended; recommended; recommended with reservations; and not recommended. LaRocca states that those receiving one of the last two ratings have their tentative job offers rescinded.

The written personality-traits profile test is not clinical or rigorous and is not considered a medical fitness examination for the purposes of Americans with Disabilities Act (ADA) analysis. Since the personality-traits profile is not a medical test, it can be given before provisional job offers and does not violate the ADA's prohibition against pre-offer medical examinations.

The ADA presents no obstacle to post-offer psychological evaluations, because such testing reasonably falls into the category of appropriate medical examinations, especially when done in the context of hiring decisions involving sensitive, highly specialized, public safety jobs. From an ADA point of view, the stresses and risks involved in fire fighting work appear to justify psychological testing.

Captain Donald Mates (personal communication, March 12, 1998) provided some cost estimates and statistics of the Montgomery County Police Department's use of psychological testing in its hiring process. Administration of the pre-offer personality-traits profile test has cost the Police Department approximately \$10-12 per candidate. The total for this test is relatively small considering it is given only to those applicants who passed the interview process. The total

cost of the psychological evaluation per applicant is approximately \$300.

Mates stated that, currently, approximately 22-23% of the applicants are eliminated from the hiring process after taking the personality-traits profile test. The extensive background investigation also eliminates a significant percentage of those remaining after the personality-traits profiles test. According to Mates, the psychological testing for the last four recruit classes (generally each class contained approximately 60 police officer candidates) eliminated only 1-2% of the applicants. In Mates' opinion, this is due to the multi-step hiring process that is designed to identify individuals who are not suited to police work.

A research of DFRS budget documents, payroll records, training records and other pertinent documents was conducted to determine the costs associated with the hiring process and recruit training process for the Department. The research revealed the budgeted per applicant cost for the hiring process is:

Interview	\$150
Background Investigation	\$500
Agility Testing (post-offer)	\$500
Medical (post-offer)	\$350
Total hiring costs	\$1500

The budgeted per recruit amount, the research showed, for training costs and recruit salary/benefits for an 18-week recruit school, is:

Training	\$4,396
Salary/Benefits	\$20,925
Total training/salary/benefits costs	\$25,321

The total cost associated with the hiring and training process is approximately \$27,000.

An attempt was made to compare DFRS with other major Maryland jurisdictions' fire departments as to their use of psychological testing. The only comparison that can be made, however, is that not one fire department has used psychological testing yet. One county, Prince George's, will be using it for the first time in a future hiring process.

DISCUSSION

In one aspect, the results of the literature review are disappointing. While PTSD is mentioned quite frequently in technical/medical books, there is little on PTSD in journals and periodicals. Conversely, there are quite a bit of dated and current articles and ARP's on fire fighter stress and stress management.

The survey of neighboring jurisdictions in Maryland proved that DFRS is no different than the rest. It reveals that DFRS and the others fit the pattern of the majority of departments surveyed by Murray (1995). Averaging both groups of departments in his survey, Murray found

that approximately 60% did not conduct psychological testing (p. 36).

Of the three fire fighters in DFRS to retire, one developed PTSD after two infant-drowning incidents. This mirrors one of the top three factors of stress reported in the ARP surveys conducted by Green (1996) and Partin (1994). Fishkin's (1991) statement that "the effects of stress are cumulative" (p. 17) appear to apply.

While at least one cited court ruling, McKenna v. Fargo, legitimatizes psychological testing in pre-employment for fire fighters, another one cited, Means v. Baltimore County, makes it clear that PTSD can be considered compensable as an occupational illness/disease. Also, when conducted properly, personality-traits profile testing and psychological testing do not violate provisions of the ADA.

Justifying the cost of psychological testing is a matter of simple mathematics. Using the information provided earlier, the cost of replacing a disabled fire fighter, the cost of the hiring process, salaries, and training costs, are approximately \$27,000. The cost of replacing a fire fighter for one year while on disability leave is over \$40,000 (assuming that the length of disability leave is one year), for a total of almost \$67,000 per PTSD-related disabled person. This does not take into account medical costs.

According to Mates, the Montgomery County Police Department spends between \$10-12 on the personality profile test and \$300 on the psychological testing per applicant. This \$312, if the same amount is needed for fire fighter testing, amounts to less than one half of one percent (.47%) of the cost of replacing the PTSD-related disabled fire fighter.

With the information that Dr. Kay provides (D. E. Stevenson, personal communication, 1997, June) and the twelve-year history and track record of the Montgomery County Police Department (LaRocca and Mates, personal communication, March 12, 1998) psychological testing can be a reality in DFRS. While it will not be in place tomorrow, with the support of all related agencies within Montgomery County and monies provided in the budget, psychological testing can become part of the next hiring process.

If nothing else, one thing is perfectly clear. Stress is a monumental problem and concern. Fire fighting is one of the most stressful jobs in the country and has been for a number of years. Stress, in the past, has been the number one killer of fire fighters. Stress is a problem that affects not only the employee, but also his or her family, loved ones, co-workers and the organization. Stress is expensive.

The implication of this study is that stress and PTSD-related disabilities will continue to occur if nothing is done to prevent them as early as possible. The employees, their families and the department will continue to face hardships, both emotionally and financially, until DFRS commits to conducting testing and "weeding out" those prone to PTSD and other emotional and personality disorders in the pre-employment process.

RECOMMENDATIONS

This study is able to answer the basic research questions presented in the Introduction. It is apparent that psychological testing in DFRS is possible and highly recommended. As such, it is recommended that, as a short-term goal, personality-traits profile testing be included in the next hiring process. The long-term goal is to add psychological testing in future hiring processes. In order to accomplish this, the following suggestions are offered:

1. Commission a work group made up of representatives of DFRS, County Office of Human Resources, County Occupational Medical Services, Office of the County Attorney and Dr. Kay, the Montgomery County Police contract psychologist (assuming his contract with the County would include his participation with DFRS). Invite, as an advisor to this group, someone from the Montgomery County Police Department who is familiar with the police hiring processes. This group will be charged with the responsibility of developing and coordinating the psychological testing process with the goal of beginning personality-traits profile testing for the next recruitment process.
2. Set a target date for completion of all work necessary to implement personality-traits profile testing for some period of time before advertising of the next recruitment process begins.
3. Under the supervision of Dr. Kay, develop a personality-traits profile test by conducting an analysis of a cross-section of fire and rescue supervisors. The purpose of this analysis is to identify a broad group of positive traits that are conducive to fire and

rescue work.

4. Determine what monies will be necessary to conduct the personality-traits profile, including both development costs and the costs of administration and evaluation. Prepare and submit a supplemental budget request to cover these expenditures.

If the above recommendations are embraced and ultimately come to fruition, the process that follows should include:

1. Evaluating the administration of the personality-traits profile testing.
2. Determining if any changes are necessary. If so, take the necessary steps to make the corrections.
3. Begin the development process to add psychological testing.

REFERENCE LIST

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC:Author.
- Bownas, D. A. (1981, January). Psychological screening of paramedics. Fire Command, pp. 18-19
- Canavan, J. (1981, May). Psychological testing for fire fighters-pro and con. Fire Journal, pp. 126-136
- Fishkin, J. F. (1991, May). The dynamics of firefighter stress. American Fire Journal, pp. 16-33
- Gaul v. Lucent Technologies, Inc., CA 3, No. 97-5114, 1/22/98
- Green, R. N. (1996). Stress management:protection for your personnel and department (Applied Research Project) National Fire Academy, Emmitsburg, Maryland, Executive Fire Officer Program.
- Hildebrand, J. F. (1984, August). Stress research:survey results. Fire Command, pp. 34-37
- Hildebrand, J. F. (1984, June). Stress research. Fire Command, pp. 55-58
- Hildebrand, J. F. (1984, May). Stress research:a perspective of need, a study of feasibility. Fire Command, pp. 20-21
- Holt, F. X. (1985, November). Post-traumatic stress disorder and the firefighter. Fire Engineering, p. 24
- Lewis, K. W. (1994, October). Stress in the fire service:a matter of life and death.

Firehouse, p. 58

McKenna v. Fargo, 451 F. Supp. 1355 (D. New Jersey 1978), aff'd, 601 F.2d 575
(3rd Cir. 1979)

Means v. Baltimore County, 344 Md. 661, 689 A.2d 1238 (1997)

Miller, T. W. (1993). The assessment of stressful life events. In L. Goldberg and
S. Breznitz (EDs.), Handbook of stress theoretical and clinical aspects
(pp. 161-169). New York, NY: The Free Press.

Murray, E. H. (1995). Pre-employment psychological testing. (Applied Research Project)
National Fire Academy, Emmitsburg, Maryland, Executive Fire Officer Program.

Montgomery County Public Safety Cluster Team, Subcommittee on Disability (1994).
Final Report. Rockville, MD: Montgomery County, MD.

Partin, J. D. (1994). Stress management: a needs assessment (Applied Research Project)
National Fire Academy, Emmitsburg, Maryland, Executive Fire Officer Program.

Podell, P. M. (1988, October). Psychological testing for ems personnel. Emergency Medical
Services, pp. 68-71

Smelson, H. I. (1979, April). Psychological screening of paramedics. Fire Command,
pp. 22-23

Stress Management: A Model Program for Maintaining Firefighter Well-Being (1991).
Emmitsburg, MD: United States Fire Administration.

The 25 most stressful occupations (1997, November 9). The Washington Post, p. H5